onstrate how four European vascular centers resort to one technical infrastructure and neuromonitoring-expertise during TAAA OR by internet connection.

Methods: In 2009 and 2010, 121 patients were treated by TAAA OR using identical protocols, including distal aortic perfusion. All neurophysiological data from two centers in Germany, one in Switzerland and one in the Netherlands were evaluated by a central neurophysiologists team in a Dutch Medical Center. Online assessment of MEPs was installed using internet with Virtual Private Network Tunnelling. We investigated the reliability, stability and robustness of this telemedical system.

Results: MEPs were monitored in all patients without technical problems. In 61 patients a significant drop in MEPs was recorded, requiring immediate protective adjustments. In 30 patients, blood pressure management, reposition of cross-clamps, blocking of intercostal arteries or rewarming restored MEPs. All other cases required reattachment of spinal cord supplying arteries. In 59 patients the protective strategies corrected MEPs completely. In all cases the data communication was stabile enabling successful MEPs evaluation by the neurophysiologist in the Netherlands.

Conclusions: Remote neuromonitoring of spinal cord function during aortic surgery is feasible and reliable. It allows centralization of expertise and saves individual centers to invest in complex technology. The value of monitoring MEPs was confirmed in different centers, resulting in adequate neurological outcome following extensive aortic procedures.

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SS20.

Physician Modified Endovascular Grafts for the Treatment of Elective, Symptomatic or Ruptured Juxtarenal Aortic Aneurysms

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Objectives: To determine if a physician modified endovascular graft (PMEG) is a safe and effective method of treating juxtarenal aortic aneurysms in patients considered to be unsuitable for open surgical repair.

Methods: A prospective, consecutively enrolling, non-randomized single institution evaluation of the safety and efficacy of physician modification of a currently FDA-approved device (COOK Zenith Flex) to preserve branch vessels when used in the treatment of patients with elective, symptomatic or ruptured juxtarenal aortic aneurysms.

Results: 47 consecutive patients underwent fenestrated endovascular repair using PMEG over a three year period. 38 patients (80%) were symptomatic or had rapid aneurysm expansion. 85% of patients were ASA category III or IV. 82 fenestrations were created for 58 renal arteries, 16 SMA's, 3 celiacs and the rest accessory vessels. Mean follow up was 103 days (range 62-442). Mean contrast usage and fluoro time were 98cc and 48 min. There were six complications (12.7%). Three (6.4%) were access related and three (6.4%) were procedure related and included one stroke, one renal failure and one branch artery dissection. On follow up, only 6 patients (12.8%) had endoleak. Operative mortality was 0%. In hospital and 30-day mortality was 2% with 1 patient expiring due to aspiration on the ward after successful endovascular repair. Two patients died during follow up; one at 58 days due to cessation of dialysis and one at 485 days due to stent graft migration and occlusion of the SMA. There were two deaths in the first year, one in the second and zero in the most recent year of experience. One patient with endoleak had aneurysm sac expansion at 1 year requiring secondary intervention.

Conclusions: PMEG is a safe and effective alternative for treating patients with juxtarenal aneurysms who have no other alternatives for repair. Longer term follow up is needed to assess the durability of repair and potential for device-related complications.

Author Disclosures: B. W. Starnes: Nothing to disclose.

VS4.

Video Presentation
Staged Total Abdominal Debranching and TEVAR for Thoracoabdominal Aneurysm

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Background: We present a video illustrating an optional strategy for repair of thoracoabdominal aortic aneurysm in patients who, because of anatomic or physiologic reasons, are not good candidates for standard open repair.

Technical Description: The video is of a 70 year old patient who had rapid growth of a 5.8 cm visceral segment aneurysm after 3 prior TAA/TAAA procedures. In the first stage, total abdominal debranching was accomplished through a midline laparotomy using a multibranched Dacron graft (Vascutek). This graft was based on the left common iliac artery and consists of a 14 mm trunk with appropriately sized side limbs for the left renal, SMA, Celiac, and right renal arteries and an integral 10 mm conduit which was buried in a lower abdominal subcutaneous pocket. This access limb obviates surgical vascular dissection during the delayed endovascular stage and was easily exposed and thrombectomized to provide access for the second stage performed 5 days later. The TEVAR procedure required 3 overlapping and tapering Talent (Medtronic) components to exclude the aneurysm. Confirmation of aneurysm exclusion and branch graft patency by subsequent CT angiogram will be shown. This patient remains well 4 months post operatively. We have performed

this procedure in 39 patients, judged poor risks for standard open TAAA repair, with 10 % mortality.

Author Disclosures: R. L. McCann: Terumo, Honorarium.

SS22.

Incidence and Outcomes of TAG compression with Comparison to the c-TAG

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Objectives: The present study was undertaken to evaluate the incidence and outcomes of infolding with the GORE TAG® Thoracic Endoprosthesis (TAG device) and to better understand the factors that might help predict these events.

Methods: Infolding events reported to WL Gore (Flagstaff, AZ) on or before December 2008 related to graft failure following the use of the TAG device were reviewed. When available, images were analyzed by an independent core laboratory.

Results: Between 1998 and December 2008, device infolding was reported in 139 cases (mean patient age 40±17 years, 73.4% males) in a total of 33,289 TAG device implants (0.4% incidence). The majority of events were noted in implants for trauma (60%) and a 26 or 28mm diameter device was used in 74% of the procedures. Approximately half of all patients (51%) were asymptomatic with diagnosis being made on routine chest imaging. The median time to diagnosis was 9.5 days (0 - 2190d). A total of 124 patients received 136 interventions, including 30 (24%) open surgical conversions and a variety of endovascular techniques (40% large balloon expandable stent(s), 31% relining with additional endograft). A total of 10 patients died following device infolding, all of which received one or more interventions to attempt to repair the infolded device. The new Conformable GORE TAG device has been modified to prevent this event with >1400 implants in Europe with 550 and 6-month follow-up with no reports of compression.

Conclusions: TAG device infolding is an infrequent event that occurs predominantly in young patients with small aortic diameters and tight arch curvature. This appears primarily related to excessive device oversizing compounded by the high peak blood flow velocities of young patients and a lack of inner curvature apposition. The newer c-TAG in short-term follow up appears to have overcome the compression events.

Author Disclosures: K. Kasirajan: WL Gore, Research Grants.

SS23.

Contemporary Results of Open Complex Abdominal Aortic Aneurysm Repair Using a Standardized Classification for Comparison with Fenestrated Endografts

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Objectives: This study analyzed outcomes of open repair of complex abdominal aortic aneurysms (cAAA) based upon an anatomic and endovascular classification system, thereby providing a standard of comparison for fenestrated endovascular repair (FEVAR).

Methods: We reviewed outcomes of 461 patients who underwent open cAAA repair (2000-2010). Pre-operative digital imaging was analyzed by a blinded investigator using centerline of flow to define aneurysm extent and the expected number of fenestrations that would be required to provide 2-cm of proximal seal for FEVAR. End-points were mortality, morbidity, renal function (RF) deterioration, re-interventions, and patient survival.

Results: There were 354 male and 107 female patients with mean age of 73±8 years. Operative mortality was 1.3% (6/461). Any morbidity occurred in 260 patients (57%), and was severe (SVS 3) in 91 (20%). Five-year patient survival, freedom from re-intervention, and freedom from RF deterioration were 72±3%, 90±2%, and 84±3%. Increasing level of aneurysm complexity (see table) was associated with greater mortality, severe morbidity and dialysis rates using either classification system (P<0.001).

Conclusions: Open cAAA repair can be performed safely with low mortality (1.3%) but high risk of complications. These data stratified by anatomic classification and the expected number of fenestrations provide a benchmark for comparison with results of FEVAR.

		n (%)			*5-yr Kaplan-Meier Estimates (%±SD)*		
Classification	*n*	*Operative mortality*	*Severe morbidity*	*Dialysis*	*Freedom RF deterioration*	*Freedom re-intervention*	*Patient survival*
			Anatomic classification				
Juxtarenal	235	0	30 (13)	5 (2)	89 ± 6	92 ± 2	76±4
Suprarenal	175	2 (1.1)	38 (22)	9 (5)	82 ± 5	88 ± 4	69 ± 5
Type IV TAAA	51	4 (7.8)	22 (43)	7 (14)	64 ± 11	81 ± 8	62 ± 10
			Expected Number of Fenestrations				
One	7	0	0	0	75 ± 21	100	67 ± 3
Two	214	0	31 (14)	4 (2)	92 ± 3	92 ± 3	76 ± 4
Three	118	1 (0.8)	20 (17)	7 (6)	72 ± 8	90 ± 5	63 ± 7
Four	74	5 (6.7)	31 (42)	8 (11)	72 ± 9	84 ± 6	71 ± 8
Total	461	6 (1.3)	91 (20)	21 (4.5)	84 ± 3	90 ± 2	72 ± 3